Remarks

Double Patenting Rejection

Claims 1 and 11-26 were provisionally rejected under the statutory "same invention" type double patenting as being unpatentable over claims 1, and 11-26 of the copending application Serial No. 09/232,110. The present application is a continuation of U.S.S.N. 09/232,110, filed January 15, 1999, which is a continuation of U.S.S.N. 08/776,264 filed March 24, 1997, which is a 371 application of PCT application No. PCT/EP95/02821, filed July 14, 1995, which claims priority to UK application No. 9414922.6 filed July 25, 1994 in the United Kingdom.

Upon allowance of claims in either application, the applicant will cancel from the other application the corresponding claims if they are identical to any of the allowed claims of the present application or consider submitting a terminal disclaimer.

Rejection Under 35 U.S.C. § 112, first paragraph

Claims 1, and 11-26 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly lacking enablement. Applicants respectfully traverse this rejection.

The Examiner asserted that an amorphous polyester latex alone, without an acrylic latex, would not form a water-resistant film or fuse at an ambient temperature. In making this statement, the Examiner maintained that US Patent No. 5,451,456 to Marchessault et al ("Marchessault") supports his statement that non-crystalline polyester forms a film with little or no strength at an ambient temperature.

The Examiner completely ignored Dr. Taylor's declaration that the polyester described in Marchessault was a moderately crystalline polyester latex. In so doing, the Examiner distorted the definitions of an amorphous polymer and that of a crystalline polymer. The Examiner interestingly asserted that a polymer is crystalline if it crystallizes and thus, the amorphous polymer as defined by Dr. Taylor is in fact a crystalline polymer. According to the Examiner, this discredits Dr. Taylor's declaration. **This is a complete misunderstanding of the basics of polymer chemistry. An amorphous polymer can crystallize to form a crystalline polymer. In contrast, a crystalline polymer having 100 % crystallinity cannot crystallize. The ability to transform into a crystalline polymer via crystallization is an inherent property of an amorphous polymer, not that of a crystalline polymer.** Accordingly, the Examiner's assertion that Dr. Taylor's declaration is not credible is completely untenable.

The Examiner further alleged that Dr. Taylor's statement that Marchessault teaches a moderately crystalline polyester latex and Example 1 of Marchessault support his position that a crystallized non-crystalline or amorphous polyester alone would be brittle with little or no strength. The applicant does not see how Dr. Taylor's statement supports the Examiner's position. As described in the present application, in order to form a water-resistant film at an ambient temperature using a polyester latex, the polyester latex has to be amorphous in that at least 60% of the polyester particles have a density of less than 102% D_{min}, D_{min} being the lowest density attainable by the polyester. As Dr. Taylor's declaration shows, the polyester latex described in Marchessault would be moderately crystalline. Moderately polyester particles are

not amorphous polyester particles. Therefore, the results shown in Example 1 of Marchessault is not inconsistent with any of the claimed polyester compositions.

The examiner alleged that there is no evidence that the claimed composition could form a hard, tack-resistant coating at ambient temperatures in the absence of an acrylic or other film-forming polymer. The examiner apparently failed to make a close reading of Examples 1 and 2 of the present application.

In Examples 1 and 2, paints formed of a composition having 90% by weight thereof PHA particles and 10% by weight thereof a conventional acrylic film-forming polymer were tested (p. 9, lines 22-29); 67 wt% of the PHA particles had a density of below 1.18 g/cm^3. The same paints in which the PHA particles were replaced with the same amount of the conventional acrylic film-forming polymers were tested for comparison (p. 10, lines 10-13). The paints were allowed to dry at 20 °C to form dried coatings and tested (p. 9, lines 32-36). As the scratch resistance tests shown in Tables 1 and 2 shows, the coatings formed of paints of the acrylic film-forming polymer with no PHA particles are soft under the scratch resistance test. In contrast, the coatings formed of paints having 90% by weight thereof PHA particles and 10% by weight thereof a conventional acrylic film-forming polymer are hard. **These results clearly establish that the amorphous PHA particles, rather than the acrylic film-forming polymer, accounts for the formation of the hard, tack-resistant coatings of Tables 1 and 2.**

Claims 1 and 11-26, accordingly, are fully enabled under 35 U.S.C. 112, first paragraph.

(iii) Rejection Under 35 U.S.C. § 103

Claims 1 and 11-26 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 5,451,456 to Marchessault et al. ("Marchessault") or the published corresponding PCT application, PCT WO 91/13207. The applicant respectfully disagrees.

Marchessault describes latex films formed from polyhydroxyalkanoate compositions at elevated temperatures (100 to 140 °C with 1000-5000 psi) or through the addition of solvents (chloroform and other halogenated solvents, ethylene or propylene carbonate, acetic anhydride, dimethylformamide, and alcohols) (col. 7, lines 24-25, 29-31, and 38-44). As noted at col. 3, lines 59-60, the dried polyhydroxyalkanoate granules used to make the latexes are **crystalline**. Dr. Taylor's declaration further shows that the PHA latex used in Marchessault is moderately crystalline.

The Examiner maintained that example 1 of Marchessault renders employing up to 10 parts by weight of the solids of a conventional film forming polymer and copolymers with PHA particles to form a room temperature film-forming paint *prima facie* obvious. This assertion is unfounded. The combination of a conventional film-forming polymer with PHA particles, without more, would not lead one of ordinary skill in the art to make paints which forms a film at ambient temperatures. A paint formed of PHA particles would form a film at ambient temperatures only if the PHA particles have certain degree of non-crystallinity (p. 5, lines 3-12). As Dr. Taylor's declaration shows, the PHA particles used in Marchessault are crystalline or

moderate non-crystalline. Indeed, in Example 1, Marchessault teaches that when a 21% hydroxyvalerate/ 79% hydroxybutyrate polymer was dried at room temperature, it produced a film "with little or no strength." (col. 8, lines 26-31). Further, Marchessault notes that the latex can be readily rinsed off a surface to which it is applied (col. 6, lines 53-56) and is therefore not "water-resistant," in contrast to the claimed materials. Marchessault's films do not fuse at room temperature, but must be heated to cause even moderate fusion (see col. 7, lines 23-25). The Declaration under 37 C.F.R. § 1.132 clearly explains why Marchessault's compositions are neither identical to nor suggestive of the claimed compositions. Marchessault and PCT WO 91/13207 fail to disclose or suggest polymers that have the claimed density (i.e., they are crystalline and therefore have a higher density). These materials, as established by Marchessault, do not form water-resistant films at an ambient temperature.

Further, as the foregoing discussion of Examples 1 and 2 of the present application shows, the amorphous polyester latex, rather than the conventional film-forming acrylic polymer, accounts for the film-forming property of the composition of Example 1 or 2 containing an amorphous polyester latex. Therefore, the Examiner's assertion that the 10% acrylic polymer, rather than the amorphous polyester latex, accounts for the water-resistant film at an ambient temperature is completely groundless.

Therefore, Marchessault provides no motivation or teaching that would lead one skilled in the art to select an aqueous film-forming polymeric composition that includes a polyhydroxyalkanoate polyester wherein at least 60% of the polyhydroxyalkanoate polyester

particles have a minimum density of less than 102%. Nor would Marchessault or WO 91/13207 lead one of ordinary skill in the art to have a reasonable expectation of success of the claimed composition. Accordingly, Marchessault or WO 91/13207 would not render claims 1 and 11-26 *prima facie* obvious under 35 U.S.C. 103 (*see*, *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986); *see also* MPEP § 2141).

The Examiner further rejected claims 1 and 11-26 as obvious under 35 U.S.C. 103 over Marchessault in view of U.S. Patent No. 4,016,306 to Miyagawa et al. ("Miyagawa"). The applicant respectfully traverses the rejection.

Miyagawa teaches an acrylic resin composition containing a thermoplastic acrylic polymer, an ethylenically unsaturated diacrylate, and a photopolymerization initiator (col. 1, line 55 to col. 2, line 56). No where in Miyagawa teaches or suggests an amorphous polyester composition capable of forming a water-resistant film at an ambient temperature. Miyagawa is therefore irrelevant. As such, as the foregoing discussion of Marchessault shows, Marchessault in view of Miyagawa would not render obvious claims 1 and 11-26 under 35 U.S.C. 103.